

REMARKS

In the Office Action, the Examiner objected to claim 1; withdrew claims 8-11 from consideration; rejected claims 1-7 under 35 U.S.C. § 112, second paragraph; rejected claims 1-7 under 35 U.S.C. § 112, first paragraph; rejected claims 1-3, 5 and 6 under 35 U.S.C. § 102(a) as being anticipated by U.S. Patent No. 6,495,127B to Wallace et al.; rejected claims 1-7 under 35 U.S.C. § 103(a) as being unpatentable over Wallace et al. in view of U.S. Patent No. 6,547,806 to Ding and U.S. Patent No. 6,471,993 to Shastri et al.

Applicants have amended claims 1, 3, 4, and 7; cancelled claims 2, 5 and 6; and added new claims 12-22. Claims 1, 3, 4 and 7-22 are pending in the patent application, of which claims 1, 3, 4, 7 and 12-22 are presented for examination.

With respect to the Examiner's objection to claim 1, Applicants have reformatted the text of claim 1 so that the claim is tabbed in and aligned with succeeding claims, as indicated above.

Applicants respectfully traverse the Examiner's rejection of claims 1-7 under 35 U.S.C. § 112, second paragraph. Although Applicants respectfully disagree with the Examiner's positions set forth in the Office Action, Applicants appreciate the Examiner's suggested claim changes, and have made various amendments in light of them in order to expedite prosecution of the present application.

In particular, claim 1, for example, has been amended to recite that the mesh includes a polymer selected from a group consisting of nylon, polyester and polycarbonate. Claim 2, which recites these polymer-related limitations has been cancelled, accordingly. Claim 3 has been amended to recite a plurality of fibers, language which was previously recited in claim 6. Claim 6 has been cancelled. The plurality of fibers of claim 3 are further defined as being bundled (claim 4), coaligned (claim 7) and including collagen (new claim 12). Support for each of these claims can be found in the specification at page 16, line 16 - page 17, line 2.

New claim 13 defines a plurality of collagen fibrils embedded in a material including derivatized collagen. Support for new claim 13 may be found, for example, in the specification at page 16, line 24 - page 17, line 2. In addition, new claim 14 recites a mesh structure including a first material selected from a group consisting of carbon and metal wire. The mesh structure is encapsulated in a second material including derivatized collagen. Support for claim 14 may be found, for example, at page 16, lines 4-8.

As noted above, claim 4, as amended, omits the grammatical error identified by the Examiner at page 5 of the Office Action. Moreover, Applicants have cancelled claim 2, 5 and 6, and thus Applicants submit that the Examiner's rejection is moot with respect to these claims.

Accordingly, in light of Applicants' amendments to claims 1, 3, 4 and 7, cancellation of claims 2, 5 and 6, as well as Applicants' incorporation of new claims 12-14, Applicants respectfully request the Examiner to reconsider and withdraw the rejection under 35 U.S.C. § 112, second paragraph.

Applicants respectfully traverse the Examiner's rejection of claims 1-7 under 35 U.S.C. § 112, first paragraph. In order to expedite prosecution of the present application, however, Applicants have further amended claims 1 and 3 to recite that the polymer (claim 1) and plurality of fibers (claim 3) are biologically compatible and non-irritating, subject matter which the Examiner concurs is adequately supported by the specification (see Office Action at pages 6-8). Applicants also note that the Examiner's rejection with respect to claim 2, 5 and 6 is moot in light of the cancellation of these claims. New claim 14 also recites that the carbon and metal wire is biologically compatible and non-irritating.

Each of independent claims 1, 3, 13 and 14 further defines a derivatized collagen concentration of at least 300 mg/ml but less than 800 mg/ml. Support for this feature can be found in the specification, for example, at page 3, lines 5-7 and page 10, line 13 - page 11, line 4. In addition, new claims 15, 17, 19 and 21, depend from claims 1, 3, 13 and 14, respectively and further recite that the derviatized collagen includes a COO⁻ functional group, support for which can be found, for example, in the

specification at page 9, lines 1-12. Moreover, new claims 16, 18, 20 and 22, which depend from claims 15, 17, 19 and 21, respectively, further require that the derivatized collagen include an SH⁻ group, support for which can be found, for example, in the specification at page 9, line 16 - page 10, line 4. Accordingly, in light of the foregoing, Applicants respectfully request the Examiner to reconsider and withdraw the rejection under 35 U.S.C. § 112, first paragraph.

Applicants respectfully traverse the Examiner's rejection of claims 1-3, 5 and 6 under 35 U.S.C. § 102(a) as being unpatentable over U.S. Patent No. 6,495,127B to Wallace et al. Applicants respectfully submit that the Examiner's rejection is moot with respect to claims 2, 5 and 6, which have been cancelled. With respect to amended claim 1, however, Applicants submit that Wallace et al. does not anticipate claim 1 because the reference fails to teach each and every element of the claim. In particular, Wallace et al. at least fails to teach the claimed combination including a material including derivatized collagen having a concentration at least equal to 300 mg/ml but less than 800 mg/ml, as recited in amended claim 1.

The Examiner asserts at page 9 of the Office Action that Wallace, at col. 12, lines 56-57, describes "a derivatized collagen." Applicants respectfully submit, however, that the cited portion of Wallace et al. is silent as to the concentration of any derivatized collagen disclosed therein. Accordingly,

Wallace et al. necessarily fails to teach the claimed combination including a derivatized collagen having a concentration at least equal to 300 mg/ml but less than 800 mg/ml, as recited in amended claim 1.

Amended claim 3, like claim 1, recites a derivatized collagen having a concentration at least equal 300 mg/ml but less than 800 mg/ml, and is therefore distinguishable over Wallace et al. at least for reasons discussed above in regard to claim 1.

In view of the above-described deficiencies of Wallace et al., Applicants respectfully submit that claims 1 and 3 are allowable over the applied reference.

Applicants respectfully traverse the Examiner's rejection of claims 1-7 as being unpatentable over Wallace et al. in view of Ding and Shastri et al. Applicants respectfully submit that the Examiner's rejection is moot with respect to cancelled claims 2, 5 and 6. Moreover, Applicants respectfully disagree with the Examiner's contentions that Vicryl, as disclosed in Wallace et al., is conductive simply because it contains carbon. Many, if not most, organic materials are not conductive, and the Examiner has failed to show that Vicryl is, in fact, conductive. In any event, even if Wallace et al., Ding and Shastri et al. were combinable in the manner proposed by the Examiner, the resulting combination of references would still fail to teach or suggest each and every limitation of amended independent claims 1 and 3.

In particular, as note above, Wallace et al. fails to disclose the claimed concentration of derivatized collagen. Ding and Shastri et al., which the Examiner relies upon allegedly for teaching metal or carbon wire (Ding) and fiber matrices (Shastri et al.), are silent as to derivatized collagen concentrations generally, and thus certainly fail to teach or suggest the claimed concentration of derivatized collagen. Accordingly, Ding and Shastri et al. fail to overcome the above-noted shortcomings of Wallace et al. Claims 1 and 3 are therefore allowable over the applied references and claims 4 and 7 are allowable at least due to their dependence from claim 3.

As noted above, Applicants have added new claims 12-22. Exemplary support for each of these claims has been discussed above in connection with Applicants' response to the Examiner's rejections under 35 U.S.C. § 112, first and second paragraphs. Applicants further submit that each of these claims is allowable over Wallace et al., Ding, and Shastri et al.

New independent claims 13 and 14 both recite a derivatized collagen concentration of at least 300 mg/ml but less than 800 mg/ml. As discussed further above, the applied prior art fails to teach or suggest this claimed feature. Accordingly, claims 13 and 14 are allowable at least for reasons identified above in regard to claims 1 and 3. Moreover, Wallace et al. expressly teaches away from using fibrous collagen in connection with derivatized

collagen ("Fibrous collagen is less desired; because it forms beady, clumpy domains in the gel and does not impart enhanced tensile strength" (col. 13, lines 52-54). Thus, Wallace et al. clearly fails to teach or suggest a tissue adhesive patch including "a plurality of collagen fibrils", as recited in new claim 13.

Turning to new dependent claims 15-22, Applicants respectfully submit that claims 15 and 16 are allowable at least due to their dependence from claim 1; claims 17 and 18 are allowable at least due to their dependence from claim 3; claims 19 and 20 are allowable at least due to their dependence from claim 13; and claims 21 and 22 are allowable at least due to their dependence from claim 14.

Moreover, claims 15, 17, 19 and 21 each require that the derivatized collagen include a COO^- functional group, and claims 16, 18, 20 and 22 also require that the derivatized collagen further includes an SH^- group. As discussed in the specification, the COO^- functional group is provided by substituting amine groups in the collagen (see page 9, lines 7-8, page 10, lines 9-10). Thus, the derivatized collagen recited in claims 15-22 necessarily has substituted amine groups. In contrast, Wallace et al. requires the presence of amine groups, and thus teaches away from such substitution in the derivatized collagen:

Derivatives of collagen ... which may not contain free, reactive amino groups, such as succinylated collagen, are also not preferred

(Emphasis added.) Col. 13, lines 54-57 of Wallace et al.

Claims 15-22 are therefore allowable over Wallace et al. alone, as well as the Examiner's proposed combination of Wallace et al. taken with Ding and Shastri et al.

In light of the foregoing amendment and remarks, Applicants respectfully request reconsideration and withdraw of the above rejections. A timely issuance of a Notice of Allowance is earnestly requested.

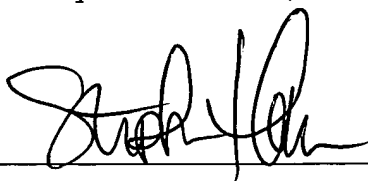
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Respectfully submitted,

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